



US006125447A

# United States Patent [19]

## Gong

**[11] Patent Number: 6,125,447****[45] Date of Patent: Sep. 26, 2000****[54] PROTECTION DOMAINS TO PROVIDE SECURITY IN A COMPUTER SYSTEM****[75] Inventor: Li Gong**, Menlo Park, Calif.**[73] Assignee: Sun Microsystems, Inc.**, Mountain View, Calif.**[21] Appl. No.: 08/988,439****[22] Filed: Dec. 11, 1997****[51] Int. Cl.<sup>7</sup> ..... H04L 9/00****[52] U.S. Cl. .... 713/201; 713/154****[58] Field of Search ..... 713/200, 201-202, 713/151, 152, 153, 154-168, 169; 709/229, 303; 395/704; 714/38, 48; 707/103, 9, 10; 380/4****[56] References Cited****U.S. PATENT DOCUMENTS**

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**[57] ABSTRACT**

A method and apparatus are provided for maintaining and enforcing security rules using protection domains. As new code arrives at a computer, a determination is assigned to a protection domain based on the source from which the code is received. The protection domain establishes the permissions that apply to the code. In embodiments where the code to be executed by the computer belongs to object classes, an association is established between the protection domains and the classes of objects. When an object requests an action, a determination is made as to whether the action is permitted based on the class to which the object belongs and the association between classes and protection domains.

**24 Claims, 6 Drawing Sheets**